THE CARE OF THE AMPUTATION STUMP[1]

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The increasing incidence of amputation in the community, largely as the result of an increased longevity with its attendant senile gangrene (over 70% of peace-time amputations result from senile gangrene), is creating an awareness of the importance of adequate care of the amputation stump. It is essential therefore that the paramedical personnel and the surgeon should provide continuous supervision of the total treatment.

Postoperative management begins in the operating theatre and its subsequent development will depend on the type of stump dressings applied to the limb.

The soft dressing is still a generally accepted technique and has the advantage of allowing unrestricted access to the wound. On the other hand, the soft tissues cannot be adequately contained and this gives rise to increased oedema with resultant increased discomfort and pain and delay in wound healing. There is, too, an increased risk of infection.

The rigid dressing has been developed in the last decade and requires the application over minimal dressings of elastic plaster of Paris bandages in such a way as to enclose the limb to mid-thigh in below knee amputations and to the ischial tuberosity in above knee amputations. This has the effect of immobilising the tissues, supporting the wound and reducing oedema, thereby practically eliminating pain and promoting healing. Rapid conditioning of the stump occurs and the development of flexion contractures is reduced. The absence of pain and the rigid support of the limb permit greater activity of the patient and allow early mobilisation. The major disadvantage of the technique is the inability to observe the wound. The absence of pain, temperature or increased pulse rate do not guarantee that necrosis of the distal stump is not occurring.

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Mobilisation should be effected as early as possible by standing and crutch walking exercises, bed to chair transfer activities, and passive and active exercises to strengthen the sound limb and to counteract flexion contractures. The patient should be taught to avoid long periods of limb flexion.

Weight bearing should be avoided in patients undergoing amputation for peripheral vascular disease until after the original plaster has been removed and the wound inspected, usually in about 14 days. Should healing be satisfactory then weight bearing can start and gradually be increased after the second plaster application has dried. Where vascular disease is absent, weight bearing can begin in 24 hours and rapidly increase to active ambulation.

During this postoperative period of rehabilitation, assessment is made of those factors which will influence the patient's ability to wear a prosthesis. The general physical state of the patient is significant. The energy expenditure associated with an above knee prosthesis is 50% greater than normal, therefore any progressive debilitating disease causing cardiac or pulmonary invalidism, neuromuscular disease with progressive motor loss or senility, are contraindications to prosthetic fitting. The patient must have a realistic understanding of his disability and be well motivated towards overcoming it. The level of amputation is particularly important in the elderly and wherever possible a below knee amputation is done as the loss of the knee joint is a severe complication for them. Furthermore, with increased longevity the possibility of a bilateral amputation is very real and from the prosthetic point of view, ambulation is better in a bilateral below knee amputation than in a single one above the knee.

Prosthetic rehabilitation commences as soon as the wound is healed and prepares the stump

for the prosthesis. Essentially it consists of vigorous physiotherapy applied to the stump so that a full range of active movements of knee and hip can be maintained; adequate instruction to the patient and the nursing staff to avoid flexion contractures; and the repeated application of a firm and adequate bandage to the stump to control and reduce swelling and to shape and condition the limb. Bandaging is usually required every four to six hours and should always be done on retiring and on awakening. Two four-inch stretch bandages sewn end to end are required for below knee stumps and two or three six-inch bandages for above knee stumps. The bandage should provide firm pressure on all areas of the stump, especially the distal end, and should not interfere with circulation in the limb. It should be applied with a figure 8 movement and should allow free activity of the stump without acting as a tourniquet or exposing the stump. It should be anchored over the most distal remaining joint to reduce slipping and in the case of above knee stumps should be carried around the waist before finishing on the thigh.

Hygiene of the stump is important, as it is usually enclosed in a heavy sock and a bucket, providing little ventilation and causing profuse perspiration. The patient is taught to wash the limb each night with soap and water, especially in scars and folds, and to dry it thoroughly; to wash his sock in the same manner and rinse well; and to clean the socket of the prosthesis and allow it to dry overnight. Phisohex may be used instead of soap to reduce the bacterial concentration on the skin. Finally he is taught the proper bandaging of his stump, which should be done whenever the prosthesis is not being worn.

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